

REMARKS

Entry of the above-noted amendments, reconsideration of the Application, and allowance of all claims pending are respectfully requested. By this amendment, claim 8 is amended and claim 30 is added. These amendments to the claims constitute a bona fide attempt by Applicant to advance prosecution of the Application and obtain allowance of the pending claims, and are in no way meant to acquiesce to the substance of the rejections. Support for the amendments can be found throughout the specification, figures, and claims (e.g., claims 1, 15, and 20) and thus, no new matter has been added. Claims 1-9, 12-15, and 18-30 are pending.

Allowable Subject Matter:

Claims 1-7, 15, 18-26, and 28-29 are allowed. Applicant gratefully acknowledges this indication of allowance.

Claim Objections

Claims 8-9, 12-14, and 27 are objected to because of informalities. Claim 8 has been amended by inserting --wherein-- before “the plane avoids”.

Withdrawal of the objection to claims 8-9, 12-14, and 27 is therefore respectfully requested.

Claim Rejections - 35 U.S.C. § 103:

Claims 8-9, 12-14, and 27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fujii et al. (USP 4,982,096) in view of Possin et al. (USP 5,430,298). These rejections are respectfully, but most strenuously, traversed.

Applicant respectfully submits that the Examiner’s citations to the applied references, with or without modification or combination, assuming, *arguendo*, that the modification or combination of the Examiner’s citations to the applied references is proper, do not teach or suggest one or more elements of the claimed invention, as further discussed below. In discussing the Examiner’s citations to the applied references herein, Applicant does not acquiesce in the modification or combination of the Examiner’s citations to the applied references.

For explanatory purposes, Applicant discusses herein one or more differences between the Examiner’s citations to the applied references and the claimed invention with reference to one or more parts of the applied references. This discussion, however, is in no way meant to

acquiesce in any characterization that one or more parts of the Examiner's citations to the applied references correspond to the claimed invention.

Applicant respectfully submits that the Examiner's citations to the applied references do not teach or suggest one or more elements of the claimed invention. A careful reading of the Examiner's citations to the applied references fails to set forth a sustainable basis that the references teach or suggest, for example, at least one mask element of optically absorbing material arranged and extended in major part along a plane disposed between the first and the second scintillators and the first and the second photodiodes to reduce optical transference between the first scintillator and the second photodiode and the second scintillator and the first photodiode, the at least one mask element having a width that exceeds the given width separating the first and the second scintillators from one another, wherein the plane avoids intersection with any of the first scintillator, the second scintillator, the first photodiode, or the second photodiode, the at least one mask element located closer to the first and the second scintillators than the first and the second photodiodes, as recited in Applicant's independent claim 8.

As stated in Applicant's Response filed 8/26/2005:

Fujii et al. teaches "separators" that are "located on both sides" of a given scintillator. Fujii et al., col. 3, ll. 11-13. These "separators" are effectively collimators or reflectors that are positioned between adjacent scintillators, as best shown in Figs. 4-5. The separators, which are referenced as numeral 104 and 104A, each extend vertically between adjacent scintillators and, in the embodiment of Fig. 5, extend upwardly past the x-ray reception surface of the scintillators 102 toward the source of x-rays 101. As shown in both figures, the separators are arranged parallel to the path of x-rays and, as such, are not arranged in a plane that is parallel to the planes of the scintillators and the photodiodes, as presently claimed.

In addition and as quoted in Applicant's Response filed 6/21/2006, Fujii et al. discloses (col. 7, lns. 17-32; FIG. 9):

FIG. 9, with reference to U.S. Pat. No. 4,429,227, discloses thin sheet separators 150, which function as a collimator for reducing the quantity of incident radiation scattering beams and also as separators for preventing optical linkage between the adjacent channels. These separators are made of tungsten or a high-density material and are mounted in such a manner as to keep a predetermined positional relationship with the scintillation blocks 151. The scintillation blocks 151 face the light receptive surface 155 of photo diodes 153 that are on a substrate 154 through the employment of optical grease 152. In this conventional example, the thin sheet 150 must have a complicated shape and optical leakage exists between the adjacent channels through the gaps between the thin sheets 150 and the light reception surfaces 155.

The separators 150 at least in major part extend orthogonally relative to respective major orientations of the scintillation blocks 151 and the photo diodes 153. In connection with Fujii et al. and Applicant's independent claim 8, the Examiner presents "plane 3" in "modified figure" 9, in which Applicant does not acquiesce. The separators 150 at least in major part extend orthogonally relative to the Examiner's "plane 3" in the "modified figure" 9 presented with the Office Action's citations to Fujii et al. Simply missing from the Office Action's citation to Fujii et al. is any mention of at least one mask element of optically absorbing material arranged and extended in major part along a plane disposed between the first and the second scintillators and the first and the second photodiodes to reduce optical transference between the first scintillator and the second photodiode and the second scintillator and the first photodiode, the at least one mask element having a width that exceeds the given width separating the first and the second scintillators from one another, wherein the plane avoids intersection with any of the first scintillator, the second scintillator, the first photodiode, or the second photodiode, the at least one mask element located closer to the first and the second scintillators than the first and the second photodiodes, as recited in Applicant's independent claim 8.

So, the Office Action's citation to Fujii et al. fails to satisfy at least one of the limitations recited in Applicant's independent claim 8.

The shortcomings of the Examiner's citation to Fujii et al. relative to certain elements of the claimed invention have been discussed above. The Examiner proposes a combination of the citation to Fujii et al. with a citation to Possin et al. However, the Examiner's citation to Possin et al. does not overcome the deficiency of the Examiner's citation to Fujii et al. Applicant respectfully submits that the proposed combination of the Examiner's citation to Fujii et al. with the Examiner's citation to Possin et al. fails to provide the required configuration, assuming, *arguendo*, that the combination of the Examiner's citation to Fujii et al. with the Examiner's citation to Possin et al. is proper.

Regarding Possin et al., as stated in Applicant's Response filed 12/20/2005, Possin et al. discloses (col. 5, ln. 66, to col. 6, ln. 2; col. 6, lns. 53-58; col. 6, ln. 64, to col. 7, ln. 20; FIG. 1) boundary light barrier 180:

In accordance with this invention, pixel boundary light barrier 180 is disposed on first surface 131 of photosensor block 130 so as to overlie the region of photosensor array 120 between respective fully photoactive regions of adjoining pixels 125.

...

Pixel boundary light barrier 180 is disposed in optical coupling layer, that is, it is disposed on first surface 131 of photosensor array 120 and is

otherwise surrounded by optical coupling layer 170, which typically comprises a light transmissive material such as a thermally stable polymer, an epoxy, or the like....

Optical coupling layer 170 and pixel boundary light barrier 180 are typically formed in the following manner. Light barrier is first formed, for example by spinning the polyimide/dye mixture on over first surface 131; after curing, the opaque polyimide/dye material is patterned using photolithographic processes (that can provide high resolution (e.g., $<5 \text{ .}\mu\text{.m}$) resolution) to provide the desired dimensions of segments 182 (FIG. 2) so as to have the light barrier disposed on first surface 131 overlying the areas between the fully photoactive regions of adjoining photodiodes and over switching elements.

In one embodiment of the invention, a channel 184 is disposed in at least one of the segments 182 surrounding each pixel 125 so as to allow fluid communication between the first surface areas overlying the fully photoactive regions of adjoining pixels 125. Optical coupling layer 170 is then deposited, such as UV light curable epoxy. The uncured epoxy is in a fluid state and thus extends over pixels 125 and around light barrier 180; channels 184 assist in the equal distribution of the liquid polyimide between pixels 125 and thus the formation of an optical coupling layer that covers light barrier 180 and is substantially planar. After the optically transparent epoxy is cured using UV illumination, scintillator 110 is formed thereover.

The pixel boundary light barrier 180 is disposed on first surface 131 of photosensor array 120. The pixel boundary light barrier 180 fails to disclose the pixel boundary light barrier 180 located closer to the scintillator 110 than the photosensor array 120. Simply missing from the Office Action's citation to Possin et al. is any mention of at least one mask element of optically absorbing material arranged and extended in major part along a plane disposed between the first and the second scintillators and the first and the second photodiodes to reduce optical transference between the first scintillator and the second photodiode and the second scintillator and the first photodiode, the at least one mask element having a width that exceeds the given width separating the first and the second scintillators from one another, wherein the plane avoids intersection with any of the first scintillator, the second scintillator, the first photodiode, or the second photodiode, the at least one mask element located closer to the first and the second scintillators than the first and the second photodiodes, as recited in Applicant's independent claim 8.

So, the Office Action's citation to Possin et al. fails to satisfy at least one of the limitations recited in Applicant's independent claim 8.

The Examiner's citations to Fujii et al. and Possin et al. both fail to meet at least one of Applicant's claimed features. For example, there is no teaching or suggestion in the Examiner's citations to Fujii et al. and Possin et al. of at least one mask element of optically absorbing material arranged and extended in major part along a plane disposed between the first and the

second scintillators and the first and the second photodiodes to reduce optical transference between the first scintillator and the second photodiode and the second scintillator and the first photodiode, the at least one mask element having a width that exceeds the given width separating the first and the second scintillators from one another, wherein the plane avoids intersection with any of the first scintillator, the second scintillator, the first photodiode, or the second photodiode, the at least one mask element located closer to the first and the second scintillators than the first and the second photodiodes, as recited in Applicant's independent claim 8.

Furthermore, the Examiner does not allege that the art of record provides any teaching, suggestion, or incentive for modifying the citations to Fujii et al. and/or Possin et al. to provide the claimed configuration.

For at least the reasons presented above, claim 8 is believed neither anticipated nor obvious over the art of record. The corresponding dependent claims are believed allowable for at least the same reasons as independent claim 8, as well as for their own additional characterizations.

Withdrawal of the § 103 rejections is therefore respectfully requested.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-9, 12-15 and 18-30.

Applicant hereby authorizes charging of Deposit Account No. 07-0845 for any additional fees associated with entering the aforementioned claims.

Applicant appreciates the Examiner's consideration of these Amendments and Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,

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